METHOD, SYSTEM AND COMPUTER PROGRAM PRODUCT FOR SCHEDULING UPSTREAM COMMUNICATIONS

ABSTRACT OF THE DISCLOSURE

A system and method is provided for scheduling transmissions from a plurality of services operating over a widely distributed communications network. A headend communications device (such as a cable modem termination system) arbitrates bandwidth among a plurality of cable modems configurable for bi-directional communications. The headend grants a bandwidth region to a specified cable modem or assigns contention regions for a group of cable modems. Each cable modem contains a local scheduler that sends requests for bandwidth according to local policies or rules. Upon receipt of a grant from the headend, the local scheduler selects packets to be transmitted to best serve the needs of the services associated with the cable modem. Accordingly, a service requesting bandwidth may not be the service utilizing the grant corresponding to bandwidth request. Nonetheless, the local scheduler manages bandwidth allocation among its local services such that all requesting services eventually receive bandwidth

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